

# Wireless, Passive Encoded Saw Sensors and Communication Links, Phase I

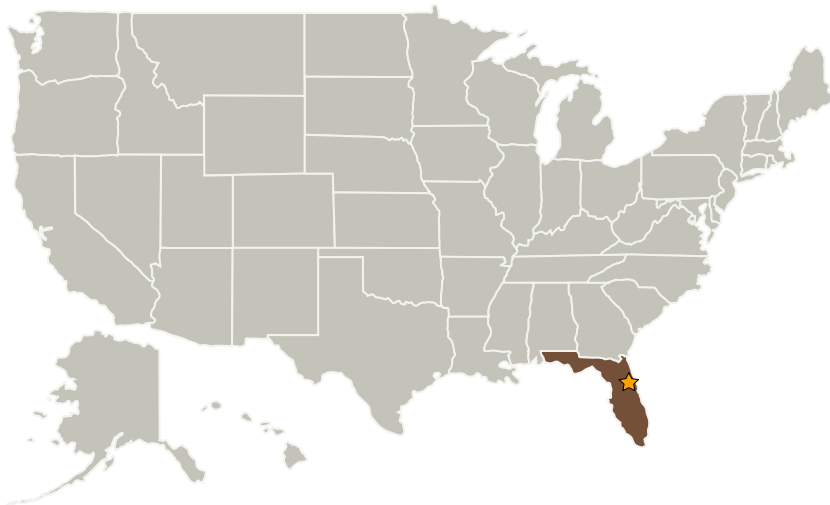
Completed Technology Project (2008 - 2009)



## Project Introduction

There are several objectives of this Phase I proposal. One major objective is to investigate SAW sensor embodiments for pressure and acceleration. Two approaches will be studied, one using the SAW substrate as both the sensor and the communication link, and a second approach using the SAW device as a communication link for an external sensor. The approach will use wireless, passive SAW coded devices, building on previous orthogonal frequency coding, and also investigating different approaches, such as phononic structure coding and combinations of coding techniques. A second major objective is to investigate and propose a complete device-transceiver sensor system, such that a complete sensor system will be realized. This is crucial to the success of the fielding and commercializing the SAW sensor technology, since it enables the interrogation of the tags and will ultimately lead to a commercial, manufacturable sensor product. A third major objective is to study important ancillary technology issues: the antenna, the packaging, and the coding used for the sensor identification. The results of this Phase I proposal will yield a vision towards the building of a complete SAW sensor system for pressure and acceleration measurements.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Kennedy Space Center (KSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Mnemonics, Inc.	Supporting Organization	Industry	Melbourne, Florida

## Primary U.S. Work Locations

Florida

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

Tj Mears

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.2 Structures
    - └ TX12.2.3 Reliability and Sustainment